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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,867	08/25/2003	David Golman King	2003-0055.02	2502
21972	7590	12/14/2004	EXAMINER	
LEXMARK INTERNATIONAL, INC. INTELLECTUAL PROPERTY LAW DEPARTMENT 740 WEST NEW CIRCLE ROAD BLDG. 082-1 LEXINGTON, KY 40550-0999			MOUTTET, BLAISE L	
		ART UNIT	PAPER NUMBER	
		2853		

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/647,867	KING ET AL.
Examiner	Art Unit	
Blaise L Mouttet	2853	<i>pw</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 25 August 2003.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 15-21 is/are allowed.

6)  Claim(s) 1,2,6 and 7 is/are rejected.

7)  Claim(s) 3-5 and 8-14 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 25 August 2003 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/25/03.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

## DETAILED ACTION

### ***Information Disclosure Statement***

1. The IDS filed August 25, 2003 has been considered by the examiner.

### ***Drawings***

2. The drawings are objected to because in figure 7, S310 "SENO" should read --  
SENSOR--.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.  
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee US 6,353,481 B1.

Lee discloses, regarding claim 1, a method of reducing printing defects in an ink jet printer (figure 2) including a printhead (12) mounted to a printhead carrier for printing on a print media sheet (column 4, lines 31-37), comprising the steps of:

determining a vertical alignment error for the printhead (as explained in view of figure 4A, S2-S5 and figures 5A-5C); and

adjusting a sheet feed increment for said print media sheet based on the vertical alignment error (as explained in view of figure 4A, S6 and figure 4B, S9).

Regarding claim 6, a sensor (2) is used in the determining step (column 5, lines 15-28).

4. Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Doval et al. US 6,494,558 B1.

Doval et al. discloses, regarding claims 1 and 2, a method of reducing printing defects in an ink jet printer (figure 1) including printheads (pens, column 1, lines 62-67) mounted to a printhead carrier (20) for printing on a print media sheet, comprising the steps of:

determining a vertical alignment error (Pen Axis Directionality error) for each of the printheads (figure 8, step 106); and

adjusting a sheet feed increment for said print media sheet based on the vertical alignment error (figure 8, step 121, column 6, lines 19-22).

Regarding claim 6, a sensor is used in the determining step (figure 8, step 107).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee US 6,353,481 B1 in view of Yoshimura et al. US 6,439,684 B1.

Lee discloses the subject matter of claim 1 as explained in the 35 USC 102 rejection above.

Lee discloses that the determining step includes generating a printing pattern including two patterns (figures 5A-5C) and scanning the printed pattern with a sensor to collect vertical alignment data (figure 4A, S3).

Lee fails to disclose that the printed pattern is printed bidirectionally.

Yoshimura et al. is relevant to diagnostic patterns used in adjusting sheet feeding and other parameters of inkjet printers and teaches that, when printing a test pattern including two patterns, printing bidirectionally (i.e. the first pattern in one direction and the second pattern in the second direction) helps improve print speed (column 14, lines 52-60).

It would have been obvious to a person of ordinary skill in the inkjet art at the time of the invention to print the two patterns of the test pattern of Lee bidirectionally (the first pattern in the forward direction, the second pattern in the reverse direction) as taught by Yoshimura et al.

The motivation for doing so would have been to improve print speed as taught by column 14, lines 52-60 of Yoshimura et al.

***Additional Prior Art***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sievert et al. US 5,796,414 teaches the use of slanted alignment marks to achieve alignment information in both a horizontal and vertical direction for an inkjet printhead.

King et al. US 6,478,401 teaches slanted block patterns to determine relative vertical misalignment between printheads.

King et al. US 6,604,808 teaches interleaving test blocks between different scans of a printhead to determine printhead skew.

***Allowable Subject Matter***

7. Claim 15-21 are allowable.

Claims 3-5 and 8-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 3-5, while positive or negative adjustments of sheet feeding amounts based on vertical alignment errors are evidenced by Lee '481 (figure 4A, S6 and figure 4B, S9) these adjustments are not taught to be based on the scan direction of the printhead. Claims 3-5, in the combinations as currently claimed, are not taught or rendered obvious by the prior art of record.

Regarding claims 8, 9, 15, and 16, while printing subsequent test blocks between other test blocks is shown in the prior art (Boleda et al. '038, King et al. '808) these methods do not include the three different printing steps of the plurality of blocks, the first block, and the next block with the sheet advancement between the first two and the third printing steps as claimed. Claims 8, 9, 15, and 16, in the combinations as currently claimed, are not taught or rendered obvious by the prior art of record.

Regarding claims 10-14 and 17-21, while printing slanted block test patterns is shown in the prior art (Sievert et al. '414, King et al. '401 and Fig 27B of Iwasaki et al. '143) these methods do not include the combination with the rectangular block printing or the generation of the horizontal and vertical alignment values from scanning the blocks as claimed. Claims 10-14 and 17-21, in the combinations as currently claimed, are not taught or rendered obvious by the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet who may be reached at telephone number (571) 272-2150. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, Art Unit 2853, can be reached at (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet December 10, 2004

*Blaise Mouttet* 12/10/2004